

MACROECONOMIC DETERMINANTS OF BANK MARKET VALUE: A REVIEW OF THE LITERATURE

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Purpose: The aim of this article is to conduct a structured review of empirical studies that examine the relationship between macroeconomic variables and the market value of listed banks. The review seeks to identify the most commonly studied macroeconomic factors, summarize the main empirical findings, and highlight methodological approaches used in the literature. By doing so, the article aims to assess the current state of research in this field, identify gaps and inconsistencies, and provide directions for future studies.

Design/methodology/approach: Review of the literature based on an analysis of empirical studies on the market valuation of banks.

Findings: Macroeconomic variables examined as determinants of the market value of banks include fundamental indicators such as GDP growth, inflation, interest rates, stock market indices, the unemployment rate, and the budget deficit. The market value of banks is also studied in relation to the quality of the institutional and legal environment, as well as in the context of systemic shocks. In each of these areas, the findings remain inconclusive, which highlights the need for further, more detailed research.

Research limitations/implications: The reviewed studies differ in terms of countries, time periods, and research methodologies, which may limit the comparability of findings and the ability to draw general conclusions.

Practical implications: This review may be useful for stock market investors, who can use observations of the macroeconomic environment to support their decisions regarding investments in bank stocks.

Originality/value: A key added value of this work is that it offers a literature review of existing studies on the relationship between macroeconomic variables and the market value of banks. It may help identify a research gap and support the design of further studies in this area.

Keywords: banks, macroeconomic factors, market value.

Category of the paper: literature review.

1. Introduction

Many banks operate as publicly listed companies, meaning their value is regularly determined on stock exchanges. The market value of listed banks is important not only for investors, but also for regulators and policymakers, as it reflects how the market perceives the financial health, risk, and growth prospects of these institutions. Since banks play a central role in every economy, understanding what drives their market value is especially important.

In contrast to non-financial companies, banks are subject to a unique set of regulatory constraints and are more tightly linked to monetary and fiscal policies. These institutional features make the valuation of banks particularly sensitive to changes in the macroeconomic environment. Macroeconomic factors such as GDP growth, inflation, interest rates, stock market performance, or policy uncertainty can significantly influence bank profitability, funding costs, and investor sentiment, thereby affecting the market value of these institutions.

Despite the potential importance of macro-level determinants, empirical research focusing specifically on the relationship between the macroeconomic environment and the market valuation of banks remains relatively limited. This review aims to fill this gap by analyzing empirical studies that explore the impact of macroeconomic variables on bank market value.

2. Scope and methodology of the literature review

A total of 27 empirical studies were analyzed in which the authors examined the impact of macroeconomic variables on the market value of banks. The relatively small number of articles stems from the fact that the literature on the relationship between the macroeconomic environment and bank market valuation is significantly limited compared to studies focusing on non-financial companies.

The empirical studies listed in Table 1 were conducted on highly diverse samples in terms of geographic coverage and time periods. The research spans both developed and developing countries across multiple regions, including Europe, North America, the Middle East, Asia, and Africa. The analyzed periods range from the late 1980s to the early 2020s, allowing for the inclusion of various phases of the economic cycle. This diversity reflects the complexity of studying macroeconomic influences on bank valuation and highlights the need for context-specific interpretations of empirical findings.

Table 1

Overview of empirical studies examining the relationship between macroeconomic factors and bank market value across countries and time periods

Authors (year)	Countries/Regions	Period
Alharbi et al. (2022)	14 countries from the Middle East and Southern Asia	2007-2017
AlKhour, Arouri (2019)	6 countries from The Gulf Cooperation Council	2003-2015
Alouane et al. (2022)	Tunisia	2008-2017
Alyosef et al. (2019)	Kuwait	2009-2016
Caprio et al. (2007)	44 countries	2001
De Jonghe, Vennet (2008)	15 EU15 countries	1997-2004
Demirgüç-Kunt, Huizinga (2013)	Australia, 19 countries from Europe, Asia and Africa	1991-2208
Egily, Sun (2014)	USA	2001-2013
Elnahass et al. (2020)	15 countries from the Middle East, South Asia and North Africa	2010-2015
Elnahass et al. (2021)	116 countries	2019-2020
Fang et al. (2014)	11 countries from Central Europe	1997-2008
González-Rodríguez (2008)	27 countries	1995-1999
Haq et al. (2019)	Australia and Canada	1995-2011
He, Niu (2018)	USA	1990-2015
Hoang et al. (2019)	Australia	2000-2015
Jones et al. (2011)	USA	1988-2008
Kramaric et al. (2016)	Croatia	2002-2013
Laeven, Levine (2007)	43 countries	1998-2002
Liang et al. (2013)	12 countries from Western and Southern Europe	2000-2007
Premti et al. (2021)	28 EU countries	2013-2015
Saif-Alyousfi et al. (2021)	6 countries from The Gulf Cooperation Council	2000-2017
Shabir et al. (2023)	106 countries	2016-2021
Simoens, Vennet (2021)	16 countries from Europe and USA	2007-2017
Zhang et al. (2018)	China	2000-2015
Velasco (2022)	6 countries from West Europe, Australia, Canada, USA	2011-2017
Vu et al. (2023)	33 countries from Europe	2014-2022
Yildirim, Efthyvoulou (2018)	56 countries	2004-2013

Source: own study.

A narrative literature review was conducted, which is characterized by the absence of a rigorous methodological framework. The process of selecting articles began with identifying studies containing phrases such as “macroeconomic factors” and “market value” in databases like Science Direct, Emerald Insight, and Google Scholar. The review focused on academic articles published after the year 2000, while also including earlier key works where relevant. In the identified studies, particular attention was paid to the citations used—if the cited works matched the subject of analysis, they were also included in the literature review. It should be noted that this approach has certain limitations. A narrative literature review involves a high degree of subjectivity in selecting sources, which may have resulted in the omission of some relevant studies (Musiał, Rachuba, 2023).

3. The impact of key macroeconomic variables on the market value of banks

GDP and inflation are key macroeconomic indicators used to describe the overall condition of an economy. These variables are examined as potential determinants of firms' market value. Given their fundamental role, it is also worthwhile to highlight findings related to non-financial companies. The results of these studies are not conclusive.

In studies concerning non-financial companies, some authors identify a positive relationship between GDP growth and market value. This suggests that during periods of economic expansion, investors are more interested in acquiring new capital, which contributes to an increase in market value. A positive relationship is confirmed in cross-sectional studies covering multiple countries with varying levels of economic development (Chua et al., 2007; Bae et al., 2020; Fauver et al., 2017). Similar conclusions are drawn in empirical studies focusing on entities from South America (De la Hoz, Pombo, 2016) as well as from Poland (Hartwell, Malinowska, 2019).

Similar to non-financial companies, some studies indicate that GDP growth is associated with an increase in market value of banks. Periods of economic expansion are often related with rising demand for credit, which enhances the profitability of financial institutions. Higher profits, in turn, contribute to a higher market value of banks. The quality of loans issued during periods of economic expansion also plays a significant role in this process. In phases of GDP growth, banks tend to provide high quality loans, which leads to a reduction in credit risk. As a result, banks with lower credit risk are seen more positively by investors and usually have higher market values.

It is worth noting that a positive relationship has been found in countries with different levels of economic development. Such a result can be observed in the USA (Jones et al., 2011; Egly, Sun, 2014; He, Niu, 2018), China (Zhang et al., 2018) Tunisia (Alouane et al., 2022) Kuwait (Alyosef et al., 2019). A positive relationship is also demonstrated through cross-sectional analyses. Velasco (2022) confirms the positive impact of the recovery phase on the market value of banks from nine developed countries but this relationship does not show a high level of statistical significance. In European banks (Liang et al., 2013) and in a large sample of banks from 43 countries (Laven, Levine, 2007), the positive relationship appears to be much more statistically significant. Caprio et al. (2007) suggest that GDP growth contributes to an increase in the market value of banks in 44 countries. According to Alharbi et al. (2022), in Middle Eastern and South Asian countries, the positive effect of GDP on market value is evident in banks led by female CEOs.

Some studies also indicate a tendency for the market value of banks to decline during periods of economic expansion. Rapid economic growth increases competition in the banking sector, which results in lower lending margins. Lower profits from core operations are

associated with a decrease in market value (Saif-Alyousfi et al., 2021). A decline in market value during economic recovery is observed in both commercial and Islamic banks from Arab countries (AlKhoury, Aroui, 2019; Elnahass et al., 2020). A negative relationship is also found in banks from 27 countries (González-Rodríguez, 2008) and 34 countries (Demirgüç-Kunt, Huizinga, 2013), as well as in Australia and Canada (Haq et al., 2019), and in Australia alone (Hoang et al., 2019).

Another key macroeconomic factor associated with changes in the market value of both non-financial companies and banks is inflation. The measure of inflation used in the reviewed studies is the annual rate of change in the Consumer Price Index (CPI). Some authors report a negative relationship, indicating that company value decline during periods of rising prices. This relationship should be considered in connection with interest rates. When inflation exceeds target levels, central banks may respond by raising interest rates. Higher interest rates lead to increased capital costs for firms, which may discourage investment and, in turn, slow down economic growth. As a result, the market value of listed companies tends to fall. In studies of non-financial firms, a negative relationship between inflation and market value is confirmed by De-la-Hoz and Pombo (2016), and Faria and Mollick (2010).

The market value of banks also tends to decline under the influence of inflation. Fang et al. (2014) show that the negative relationship is strongest in post-communist Central European countries that have significantly liberalized their banking sectors. Liang et al. (2013) demonstrate that inflation has a negative impact on the market value of European banks expanding abroad by opening branches in other countries. Rising inflation also reduces bank value in Middle Eastern countries (AlKhoury, Aroui, 2019; Alyosef et al., 2019).

Some studies show an increased likelihood of higher market value during periods of rising inflation. Moderate inflation can signal economic growth, which tends to boost the stock market. In research on non-financial companies, Hartwell and Malinowska (2019) observed an increase in market value among Polish firms.

A positive link between inflation and the market value of banks is also found in several studies (Alouane et al., 2022; González-Rodríguez, 2008; Velasco et al., 2022). This result is not unexpected, as investment theories suggest that bank stocks can perform well during periods of rising inflation. This is because inflation is often followed by interest rate hikes, which can improve banks' earnings and boost their market value. However, some studies show that the level of inflation does not significantly impact bank valuation (De Jonghe, Vennet, 2008; Laeven, Levine, 2007; Hoang et al., 2019; Kramaric et al., 2016).

Interest rates are another fundamental macroeconomic variable with substantial implications for the financial sector. Due to their direct effect on banks' interest income, funding costs, and monetary transmission mechanisms, interest rates are examined as another key determinant of market value. They matter for bank stock valuation because banks' revenues and costs are closely tied to their level. Simoens and Vennet (2021) consider the central bank interest rate in the country where the bank is headquartered. Their findings show that an increase

in domestic interest rates is associated with a rise in the market value of European banks, while in the U.S., this relationship is not statistically significant.

Another interest rate-related factor examined in relation to bank valuation is government bond yields. Research indicates that the market value of EU banks is significantly affected by the spread between a country's 10-year government bond yield and the yield on 10-year German Bunds. Simoens and Vennet (2021) show that a wider spread significantly reduces the market value of financial firms. Long-term interest rates, based on yields from long-term government bonds or similar assets, also play a role. Studies show that the market value of EU banks increases during periods of rising long-term interest rates (De Jonghe, Vennet, 2008).

Among the key macroeconomic factors relevant to the market value of banks are public finance indicators and unemployment. Public finance factors relate to government spending and budget balance. Empirical studies show that investors tend to favor banks from countries with budget surpluses (Demirgüç-Kunt, Huizinga, 2013; Saif-Alyousfi et al., 2021), while rising government spending significantly reduces bank value (Demirgüç-Kunt, Huizinga, 2013). The link between unemployment and bank value is less frequently studied. Only He and Niu (2018) include this factor in their analysis, showing that the market value of bank holding companies is negatively related to the unemployment rate. This suggests that banks operating in stronger economies tend to have higher market value.

Another important aspect worth considering is the condition of the capital market, which may partially reflect the overall macroeconomic environment. Research shows that stock market indices also have a significant impact on the market value of banks. Market indices provide a summary measure of overall stock market performance and help predict trends in the entire market or specific sectors. When an index rises, it signals overall price increases and positive market sentiment. When it falls, it reflects worsening market conditions. Studies show a positive relationship. For European banks, market value is positively linked to the Stoxx Europe 600 index (Simoens, Vennet, 2021). A similar positive relationship is observed when national stock indices are considered (De Jonghe, Vennet, 2008). In the United States, the S&P 500 index is also found to positively influence the market value of banks (Jones et al., 2011; Simoens, Vennet, 2021).

Energy plays a key role in stimulating national economic growth. Oil and natural gas are important components in the production process, so price volatility in these resources affects the real economy, and consequently, the market value of banks. Saif-Alyousfi et al. (2021) conduct such an analysis on a sample of banks from oil- and gas-exporting countries. The authors use five indicators to measure price shocks. The results, based on commercial and Islamic banks, suggest that oil and gas price shocks have a direct impact on the market value of banks. An increase (decrease) in oil and gas prices raises (lowers) the market value of banks. These findings are stable regardless of the definitions of price shocks used.

4. The impact of institutional and regulatory factors on the market value of banks

Institutional reforms are part of the broader category of macroeconomic factors influencing bank market value. Fang et al. (2014) conducted an extensive study on how such reforms affect the market value of banks in Central European countries. Their analysis is focused on reforms in the banking sector, capital markets, and legal systems, particularly regarding collateral and bankruptcy regulations.

The level of banking reform implementation is assessed using an index developed by the European Bank for Reconstruction and Development (EBRD). This index measures progress in areas such as the creation of a two-tier banking system, increased independence of central banks in setting interest rates, development of banking supervision and prudential regulation frameworks, and alignment with Basel Committee principles. A higher index score reflects more advanced interest rate liberalization, greater freedom in credit allocation, improved supervision standards, increased lending to private firms, and a stronger presence of private banks in the sector.

The EBRD also provided an index to assess capital market reforms. This measure evaluates whether a country has established stock exchanges and regulatory agencies, including market makers. The index also captures whether independent share registries have been established and whether non-bank financial institutions, such as insurance companies, operate in the market. It also assesses the legal framework for issuing and trading securities. The analysis includes the volume of securities issued by private companies and the degree of protection for minority shareholders. A higher index score indicates that a country's regulations are moving closer to the standards seen in developed economies.

The third index used by Fang et al. (2014) assesses the progress of legal reforms in the areas of collateral and bankruptcy regulations. Collateral laws define the types and extent of security that lenders can require, while bankruptcy laws govern how creditors collectively recover claims from insolvent debtors.

The results show that after implementing reforms in bankruptcy and collateral laws, banks significantly increase their lending activity, which leads to higher market value. Fang et al. (2014) also find that greater progress in banking sector reforms raises bank market value by improving their financial stability. In contrast, the development of capital markets has a negative effect on bank valuation. According to the authors, this is because, in such conditions, more firms start seeking financing through stock markets instead of relying on bank loans.

Further studies examining the impact of regulation on bank market value include those by González-Rodríguez (2008) and Liang et al. (2013). González-Rodríguez (2008) focuses on regulatory restrictions related to banks' activities. The measure used in the study assesses the

level of freedom banks have in operating in securities, insurance, and real estate markets. A higher score indicates stricter regulations, while a lower score reflects fewer limitations. The results suggest no statistically significant relationship between this index and bank market value. Similarly, Liang et al. (2013), who focus on capital markets, find no significant link between regulatory restrictions on bank activity in these markets and their market value.

Researchers also consider the quality of the institutional and legal environment when analyzing banks, using the Index of Economic Freedom developed by the Heritage Foundation and *The Wall Street Journal*. This index assesses the level of economic freedom in 10 areas, including banking and finance, government intervention, taxation, wages and prices, trade policy, monetary policy, property rights, capital flows and foreign investment, legal regulations, and the shadow economy. González-Rodríguez (2008) focuses on the property rights sub-index, where a higher score indicates weaker government protection and enforcement of private property rights. The results show a negative impact on bank market value—suggesting that the weaker the property rights protection in a country, the lower the market value of its banks.

De Jonghe and Vennet (2008) also use the Index of Economic Freedom in their analysis, focusing not only on property rights protection but also on two additional components: business freedom and banking freedom. The business freedom index is based on measures of how easy or difficult it is to start, operate, and close a business. The banking freedom index assesses the level of regulation in the banking sector, including the degree of freedom for domestic and foreign banks and the role of state-owned banks. It also considers whether the government influences credit allocation. The results show that only the business freedom index has a significant negative effect on bank market value. This relationship may be explained by the fact that new firms often secure loans at lower margins, which reduces bank profits and, in turn, their market value.

The literature also examines the relationship between the introduction of specific legal acts and the market value of banks. Premti et al. (2021) focus on the Fourth Anti-Money Laundering Directive (4AMLD), introduced by the European Commission on May 20, 2015. Their study analyzes stock price reactions across eight key events, starting with the first announcement (February 5, 2013) and ending with the directive's formal implementation (June 26, 2015). The authors investigate whether the benefits of introducing the directive are greater in countries with higher levels of corruption.

Premti et al. (2021) use the Corruption Perceptions Index, which ranks countries based on how experts and the public view corruption in the public sector. They also analyze the quality of governance using the World Bank's Worldwide Governance Indicators, which evaluate executive functioning across six areas: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. Additionally, the study considers a country's level of wealth, measured by GDP per capita, as a potential factor influencing the relationship between the implementation of 4AMLD and bank market value.

The findings show that adopting the directive has a positive effect on banks' market value. This positive relationship is especially strong for banks in countries with high levels of corruption, suggesting that where money laundering is more common, the directive brings greater credibility and value to the banking sector. Banks in wealthier countries also experience a rise in market value. In countries with strong governance scores, the directive's impact is less pronounced, likely because these countries already have effective anti-money laundering systems in place.

The Worldwide Governance Indicators used in Premti et al. (2021) are also applied in studies by Alharbi et al. (2022), Elnahass et al. (2020), and Yildirim and Efthyvoulou (2018). Elnahass et al. (2020) find that higher governance scores are linked to increased market value, suggesting that shareholders are more willing to invest in countries with better governance. Yildirim and Efthyvoulou (2018) note that this positive effect appears only in developing countries, while in developed economies it is no longer statistically significant. Alharbi et al. (2022) report that higher governance quality does not have a significant impact on the market value of banks in the countries they studied.

The market value of banks is also studied in relation to the legal protection of minority shareholders. Research shows that the level of investor protection in a given country is an important factor contributing to the development of financial markets. In countries where minority shareholders are well protected, they are more willing to provide funding to companies. This is because they are confident they won't be expropriated by majority owners (La Porta et al., 2002). Shareholder rights influence not only the growth of financial markets but also the market value of individual firms. Caprio et al. (2007) assess the relationship between minority shareholder rights and bank market value using a composite index ranging from zero to six. Higher values of the index indicate stronger rights for bank shareholders. Their findings show that better protection of minority owners encourages investment, which in turn increases the market value of banks.

5. Market value of banks in times of economic uncertainty and global disruptions

Uncertainty related to economic policy and external shocks has become an increasingly important area of research in the context of financial markets. These factors can significantly influence investor sentiment and the valuation of companies, including banks. Some studies explore the relationship between Economic Policy Uncertainty (EPU) and company market value. The EPU index reflects the frequency of newspaper articles that mention words like "uncertainty" in an economic context. Research on non-financial firms shows that in some countries, an increase in EPU is associated with a significant drop in firm value—both in the

short term (Chen et al., 2017; Jory et al., 2020) and over the longer term (Yang et al., 2019). In the banking sector, the impact of policy uncertainty on market value tends to be indirect. A higher EPU index slows down credit growth, which in turn lowers the market value of banks (He, Niu, 2018).

The turbulent events of 2020-2023 provide an important context for research on bank market value. Vu et al. (2023) analyze changes in the market value of European banks in response to increased risks related to Brexit, the Covid-19 pandemic, and Russia's invasion of Ukraine. Their findings show a significant decline in market value during these events, especially among small and young banks. Vu et al. (2023) also find that the negative impact of such shocks is less pronounced in banks with high capital adequacy ratios.

The impact of the Covid-19 pandemic on the market value of banks is analyzed also by Elnahass et al. (2021). The authors examine the years 2019-2020 and show that in the first two quarters of 2020, banks had lower market value compared to the other quarters. Similar conclusions are drawn by Shabir et al. (2023), who also use quarterly data. The authors analyze the years 2016-2021 and define the pandemic period as the first three quarters of 2021.

6. Conclusions

The literature review identified a wide range of macroeconomic factors examined in relation to the market value of banks. These factors can be classified into three groups. The first group comprises fundamental indicators commonly used to characterize the condition of an economy, including GDP, inflation, interest rates, the government budget balance, the unemployment rate, stock market performance, and energy prices. The second group includes institutional and regulatory factors, such as reforms of the banking and capital markets, indicators reflecting the quality of the institutional environment, and the level of minority shareholder protection. The third group includes Economic Policy Uncertainty index and external shocks.

For many variables, the findings remain inconclusive. Differences in results across countries and time periods suggest that the relationship between macroeconomic conditions and the market value of banks is complex and potentially non-linear. This lack of consistency highlights the need for further in-depth research into where these differences may stem from. The conducted literature review may serve as a starting point for designing future research. It is worth emphasizing that, compared to non-financial firms, studies focusing on the macroeconomic environment and the market value of banks still constitute a relatively small part of the literature. This highlights the need to expand research in this area.

From a theoretical perspective, several frameworks can help explain the observed relationships between macroeconomic variables and the market value of banks. Tobin's Q theory (Tobin, 1969) suggests that the ratio between market value and the

replacement cost of assets can reflect investment opportunities and firm efficiency, while macroeconomic conditions may influence this ratio by altering expected profitability or the cost of capital. Signaling theory (Connelly et al., 2011) highlights how banks' market value may reflect investors' interpretations of economic signals such as inflation or changes in interest rates as indicators of future performance. Market efficiency theory (Fama, 1970), in turn, assumes that all available information, including macroeconomic data, is quickly reflected in stock prices, although mixed empirical results suggest that inefficiencies may exist across different countries and banking systems. Integrating these theoretical approaches may provide a coherent framework for interpreting the empirical inconsistencies observed in the literature.

A critical review of the empirical literature reveals a substantial variation in the methodological rigor and robustness of studies investigating the relationship between macroeconomic conditions and the market value of banks. The most advanced approaches include dynamic panel estimators, such as system GMM (Alkhouri, Arouri, 2019; Yildirim, Efthyvoulou, 2018), or three-stage least squares (3SLS) and simultaneous equation systems (Alharbi et al., 2022; González-Rodríguez, 2008), which are particularly well-suited for addressing endogeneity and reverse causality. These techniques enhance internal validity and allow for more reliable inferences about the causal impact of macro-level determinants on bank valuation. By contrast, several studies rely on static panel models or OLS regressions (Alyousef et al., 2019; Liang et al., 2013), which may suffer from omitted variable bias and fail to control for the persistence of firm-level performance.

Another notable methodological innovation is the application of stochastic frontier analysis by De Jonghe and Vander Venet (2008), who construct a noise-adjusted Tobin's Q as a more accurate proxy for long-term franchise value. Similarly, some studies incorporate event-study designs (Premti et al., 2021) or difference-in-differences frameworks (Fang et al., 2014), which enhance causal identification in policy-relevant contexts but may lack external generalizability. In sum, the empirical evidence is heterogeneous not only in terms of findings, but also in the strength and credibility of inference. For this reason, greater weight should be given to studies that adopt dynamic or multi-equation models with appropriate instruments, robust diagnostics, and panel structures covering a wide range of countries and macroeconomic conditions.

A better understanding of the relationship between macroeconomic conditions and the market value of banks is especially important for investors and financial analysts, as it can help them better assess the risks and opportunities of investing in the banking sector under different economic conditions. It is also useful for bank managers and decision-makers, who can use this knowledge to plan strategies that support or improve the bank's market value when the economic environment changes.

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